

# FAULT RECORDING AND SEQUENCE OF EVENTS RECORDING DEVICE CAPABLE OF RECORDING COMMUNICATION-BASED SIGNALS RELATED TO ELECTRICAL POWER SYSTEMS

## Abstract

A method and apparatus for recording analog signals and digitally encoded information associated with primary devices of an electric power system and secondary devices associated with the electric power system, the apparatus includes a hosting device configured for: receiving a plurality of analog output signals from corresponding transducers of the electric power system; receiving a plurality of ON/OFF status signals from the primary and secondary devices of the electric power system; receiving at least one of a time-synchronization analog signal from a time synchronization source and a time-synchronization data packet from the time synchronization source over a communication medium; maintaining an internal clock synchronized with the synchronization source for time synchronization; sampling and digitizing the ana-

log output signals; monitoring at least one of a status and a change of status of the ON/OFF status signals; receiving digitally encoded information signals as data packets via a communication port; decoding and analyzing the content of the incoming data packets; analyzing both the analog output signals and digitally encoded information signals using a user-programmable triggering mechanism; and a non-volatile memory storage medium in operable communication with the hosting device, the non-volatile memory storage medium storing the incoming analog output and digitally encoded information signals together with corresponding timing information in a record as fault and sequence of events records.